Notice of Allowability	Application No.	Applicant(s)	
	09/689,218	GILES ET AL.	
	Examiner	Art Unit	
	Kenny Lin	2154	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *11/10/2005*.

2. ☒ The allowed claim(s) is/are *1-7, 9-11 and 21-26 now renumbered as 1-16*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date *1/5/06* .
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

JOHN FOLLANSBEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

DETAILED ACTION

1. Claims 1-7, 9-11 and 21-26 are presented for examination.

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Ashely Ott, Reg. No. 55,515, on 1/5/2006.

3. The application has been amended as follows:

Amend the specification

Please replace the paragraph starting on page 7, line 15, with the following amended paragraph:

Each node in the block 300 performs normal server function as well as switching, routing, load balancing, and fail-over functions. Routing gives loop free paths and automatic dealing with failed nodes but no load balancing. Load balancing can be handed in various manners but in the preferred embodiment this function is performed as detailed in co-pending U.S. Patent Application No. 09/607,639, now U.S. Patent 6,658,479, entitled "Load-Balancing Anycasting and Routing in a Network" filed on June 30. 2000. To summarize, in this embodiment, load balancing is performed by continuously calculating the load, response time and link traffic load on all possible connections and picking the one that, at this point in time, can

provide the quickest response. Because this is a distributed calculation, each node does not need to know how to access all other nodes, it only needs to know how to access its neighboring nodes. Therefore, routing table can be very small since a node only needs to know its immediate neighbors and not the entire network.

Amend the claims

1. (Currently Amended) An apparatus comprising:

a card rack; [[and]]

~~two or more~~ a plurality of server node cards mounted on the card rack;

an interface card mounted on the card rack separate from the plurality of server node cards, the interface card to provide an external connection to another card rack mounted with other server node cards and to provide a connection to an external network;

[[,]]wherein each of the plurality of server node cards include ~~including~~:

a server to perform integrated switching, routing, load balancing, and fail-over functions;[[and]]

a plurality of ports, wherein at least one port to directly connect to another server node card in the card rack and at least one port to connect to the interface card [[an]] to access the external connection to the another card rack including the other server node cards; and

a routing table comprising no more than routing information of the directly connected server node cards in the card rack and the immediate connected interface card; and

~~an interface card mounted on the card rack separate from the two or more server node cards, the interface card to provide the external connection to the another card rack and to provide a connection to an external network,~~ wherein the interface card to connect to each of the server node cards in the card rack via interconnections to at least one of the ports of each of the server node cards.

2. (Currently Amended) The apparatus of claim 1, wherein the server node cards and the interface card each comprises a single printed circuit board.

5. (Currently Amended) A server block comprising:

a plurality of server node cards;

an interface card mounted on the server block separate from the plurality of server node cards, the interface card to provide an external connection to another server block mounted with a plurality of other server node cards and to provide a connection to an external network;

[[,]]wherein each of the plurality of server node cards include ~~including~~:

a server to perform integrated switching, routing, load balancing, and fail-over functions;

a plurality of ports, at least one port of the plurality of ports configured to directly connect to another server node card and at least one port configured to connect to the interface card [[an]] to access the external connection to the another server block including [[a]]the plurality of other server node cards; and

a routing table comprising no more than routing information of directly connected server node cards in the server block and the immediate connected interface card; and

~~an interface card mounted on the server block separate from the server node cards, the interface card to provide the external connection to the another server block and to provide a connection to an external network,~~ wherein the interface card to connect to each of the server node cards in the server block via interconnections to at least one of the ports of each of the server node cards.

7. (Currently Amended) The server block of claim 6, wherein the printed circuit board is rack mountable and the plurality of ports of each server node cards are accessible as connection points on [[the]]a card rack, and the server block is constructed in [[one]]the card rack by interconnecting the connection points on the card rack.

9. (Currently Amended) A computer network comprising:

a plurality of server blocks wherein each server block comprising:

a plurality of server nodes;

an interface card mounted on the server block separate from the plurality of server nodes, the interface card to provide an external connection to another server block mounted with a plurality of other server node cards and to provide the external connection to the network;

[[,]]wherein each of the plurality of server nodes include ~~including~~:

a server to perform integrated switching, routing, load balancing, and fail-over functions;

a plurality of ports, at least two ports of the plurality of ports configured to directly connect to at least two other server nodes of the plurality of server nodes in the server block and at least one port configured to connect to the interface card [[an]] to access the ~~provide an~~ external connection to the another server block including [[a]]the plurality of other server node cards;

~~plurality of signal paths to connect the plurality of ports with the other server nodes and with the another server block; and~~

~~plurality of signal paths connected with the server blocks, at least one signal path connected with each server block to provide an external connection to the network, and at least two signal paths connected with each server block to connect with other server blocks of the plurality of server blocks; and~~

a routing table comprising no more than routing information of directly connected server nodes in the server block and the immediate connected interface card; and

~~an interface card mounted on the server block separate from the server node cards, the interface card to provide the external connection to the another server block and to provide a connection to an external network,~~ wherein the interface card to connect to each of the server nodes in the server block via interconnections to at least one of the ports of each of the server nodes.

11. (Currently Amended) The computer network of claim 10, wherein the printed circuit board is rack mountable and the plurality of ports of each server node are accessible as connection points on [[the]]a card rack, and [[a]]each server block is constructed in [[one]]the card rack by interconnecting the connection points on the card rack.

21. (Currently Amended) The apparatus of claim 1, wherein to perform routing functions further includes:

receiving a request at a particular [[the]]server node card;

determining whether to service the request; and

if unable to service the request, routing the request to ~~another~~ a different server node card coupled with the particular server node card in the card rack.

22. (Currently Amended) The apparatus of claim 21, wherein to perform load balancing functions further includes:

determining the present load of other one or more ~~other~~ server node cards coupled with the particular server node card in the card rack; and

routing the request to a determined server node card with the smallest load of the other one or more ~~other~~ server node cards ~~with the smallest load~~.

23. (Currently Amended) The server block of claim 5, wherein to perform routing functions further includes:

receiving a request at a particular [[the]]server node card;

determining whether to service the request; and

if unable to service the request, routing the request to ~~another~~ a different server node card coupled with the particular server node card in the server block.

24. (Currently Amended) The server block of claim 23, wherein to perform load balancing functions further includes:

determining the present load of other one or more ~~other~~ server node cards coupled with the particular server node card in the server block; and

routing the request to a determined server node card with the smallest load of the other one or more ~~other~~ server node cards ~~with the smallest load~~.

25. (Currently Amended) The computer system of claim 9, wherein to perform routing functions further includes:

receiving a request at a particular [[the]]server node;

determining whether to service the request; and

if unable to service the request, routing the request to ~~another~~ a different server node coupled with the particular server node in the server block.

26. (Currently Amended) The computer system of claim 25, wherein to perform load balancing functions further includes:

determining the present load of other one or more ~~other~~ server nodes coupled with the particular server node in the server block; and

routing the request to a determined server node with the smallest load of the other one or more ~~other~~ server nodes ~~with the smallest load~~.

4. Claims 1-7, 9-11 and 21-26 are allowed.

5. The following is an examiner's statement of reasons for allowance: None of the prior art of record fully teaches or fairly suggests all of the claimed limitation especially the limitation of a card rack/server block having many server node cards each having ports for connecting with at least one other server node on the card rack/server block and connecting with the interface card of the card rack/server block for accessing the server node cards of the other racks. Furthermore, none of the prior art suggested that because of the interconnection with the server nodes in the card rack, only a small routing table is needed for each server node card to contain routing information of the directly connected server node cards and the routing information of the interface card.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenny Lin whose telephone number is (571) 272-3968. The examiner can normally be reached on 8 AM to 5 PM Tue.-Fri. and every other Monday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Follansbee can be reached on (571) 272-3964. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ksl
January 9, 2006

JOHN FOLLANSBEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100